

REMOTE SETUP OF THIRD PARTY TELEPHONE CALLS

Inventor(s):

Thomas E. Creamer

Victor S. Moore

Linda A. Steinmuller

Glen R. Walters

International Business Machines Corporation

IBM Docket No. BOC9-2001-0008

IBM Disclosure No. BOC8-2001-0003

Express Mail Label No. EL 649719859 US

BACKGROUND OF THE INVENTION

Technical Field

The invention relates to the field of telephony, and more particularly, to the field of enhanced calling services.

Description of the Related Art

Conventional telephony services provide several different features for including a third party within an existing telephone call. For example, telephony services commonly referred to as "three-way calling" and "call waiting" are two features which can include a third party within an existing telephone call in one form or another. Despite the convenience afforded by such telephony services, the features presently available can be somewhat limited in nature. In particular, conventional telephony services do not provide a feature which allows a third party to interrupt an existing telephone call without operator assistance should the need arise.

For example, "three-way calling" enables one of two parties engaged in an existing telephone call to initiate a second outbound telephone call to a third party. When the third party answers the outbound telephone call, the third party can be included or teleconferenced into the original or existing telephone call. Three-way calling, however, is restrictive in that only a party engaged in the original call can add a third party to a call by initiating an outbound call to the third party. The third party is not provided with any independent means for initiating a teleconference with either of the two parties already engaged in the original, ongoing telephone call.

"Call waiting" enables a third party to attempt to interrupt an ongoing telephone call between two callers. As is well known in the art, the called party already involved in an existing telephone call typically hears an audible signal indicating that a third party is attempting to call or interrupt. The called party, however, can choose whether to answer the third party call or to ignore the third party call and continue with the original call. Thus, the third party cannot force the called party to answer the incoming call. Additionally, if the called party does choose to answer the incoming call from the third

party, the other caller involved in the original call is placed on hold. Thus, the third party is not conferenced into the existing telephone call.

SUMMARY OF THE INVENTION

5 The invention disclosed herein provides a method and apparatus for including a third party within an existing telephone call. In particular, the present invention allows a third party to call one of several other parties already engaged in an existing and ongoing telephone call and to join or intercept that existing call. Accordingly, the present invention can be used in cases wherein a parent calls home but the child fails to answer call waiting requests or in a business context to enable third parties to join an existing conference call. Accordingly, when a third party calls another party whose telephone is in an "off-hook" state, the third party, whether the option is presented to the third party or the third party engages the service, can choose to be conferenced into the existing telephone call. Notably, the invention can include security features to prevent unauthorized persons from conferencing into existing telephone calls.

10 One aspect of the present invention can include a method of establishing a third party call. Responsive to a telephone call initiated by a third party to the directory number of a called party, a determination can be made as to whether the called party is engaged in an existing telephone call with one or more other parties. The telephone call can be processed in a telephony application. The telephony application can determine whether the third party has authority to join the existing telephone call with the called party. If so, the third party can be connected with the existing telephone call.

15 A password can be received from the third party so that a determination can be made as to whether the third party is an authorized party. Still, additional information such as caller identification information can be used apart from the password or in combination with the password to determine whether the third party is an authorized party. For example, the method can include identifying caller identification information associated with the third party, comparing the caller identification information with a list of authorized callers, and determining whether the third party is an authorized party.

20 The connecting step can include connecting the call only if the directory number of the called party has been registered to receive calls initiated from authorized remote third party callers when engaged in an existing telephone call. Notably, the method can

include establishing a communications link between the third party and the called party, wherein the other parties involved in the existing telephone call can be either included or excluded from the resulting conference call.

Another aspect of the present invention can include a method of establishing a third party call including receiving a telephone call from the third party to an access directory number. A directory number from the third party can be received, wherein the directory number is associated with a called party. The telephone call can be processed in a telephony application. The telephony application can determine that the called party is engaged in an existing telephone call with one or more other parties, and further determine whether the third party has authority to join the existing telephone call with the called party. If so, the third party can be connected with the existing telephone call.

The processing step further can include prompting the third party for a password, receiving the password from the third party, and determining whether the third party is an authorized party using at least the password. As mentioned, caller identification information can be used to further verify whether the third party is an authorized party. For instance, the method can include identifying caller identification information associated with the third party, comparing the caller identification information with a list of authorized callers, and determining whether the third party is an authorized party.

The connecting step can include connecting the call only if the directory number of the called party has been registered to receive calls initiated from authorized remote third party callers when engaged in an existing telephone call. A communications link between the third party and the called party can be established exclusive of the other parties involved in the existing telephone call. The other parties, however, may be included in the resulting teleconference.

Another aspect of the present invention can include an IP node having a telephony application configured to first determine that a called party is engaged in an existing telephone call with one or more other parties responsive to a telephone call initiated by a third party to a directory number of the called party. The telephony

application can process the telephone call and determine whether the third party has authority to join the existing telephone call with the called party. If so, the telephony application can connect the third party with the existing telephone call.

Yet another aspect of the present invention can include an IP node having a telephony application configured to receive a telephone call from a third party to an access directory number. The telephony application can receive a directory number from the third party, wherein the directory number is associated with a called party. The telephony application can process the telephone call and determine that the called party is engaged in an existing telephone call with one or more other parties. The telephony application further can determine whether the third party has authority to join the existing telephone call with the called party. If so, the telephony application can connect the third party with the existing telephone call.

BRIEF DESCRIPTION OF THE DRAWINGS

There are shown in the drawings embodiments which are presently preferred, it being understood, however, that the invention is not limited to the precise arrangements and instrumentalities shown.

5 Figure 1 is a schematic diagram illustrating an exemplary system for remote setup of third party calls in accordance with the inventive arrangements disclosed herein.

Figure 2 is a call diagram illustrating the remote setup of a third party call.

Figure 3 is a flow chart illustrating a method of setting up remote third party calls.

5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
265
270
275
280
285
290
295
300
305
310
315
320
325
330
335
340
345
350
355
360
365
370
375
380
385
390
395
400
405
410
415
420
425
430
435
440
445
450
455
460
465
470
475
480
485
490
495
500
505
510
515
520
525
530
535
540
545
550
555
560
565
570
575
580
585
590
595
600
605
610
615
620
625
630
635
640
645
650
655
660
665
670
675
680
685
690
695
700
705
710
715
720
725
730
735
740
745
750
755
760
765
770
775
780
785
790
795
800
805
810
815
820
825
830
835
840
845
850
855
860
865
870
875
880
885
890
895
900
905
910
915
920
925
930
935
940
945
950
955
960
965
970
975
980
985
990
995

DETAILED DESCRIPTION OF THE INVENTION

5 The invention disclosed herein provides for the remote setup of third party telephone calls. Specifically, a method and apparatus is disclosed for including a third party within an existing telephone call. In accordance with the present invention, a third party can call one of several other parties already engaged in an existing telephone call, and can join that existing call. Thus, when the third party calls another party whose telephone is in an "off-hook" state, the third party can be conferenced into the existing telephone call without requiring the assistance of an operator. Notably, security features such as passwords can be further provided to prevent unauthorized persons from conferencing into existing telephone calls.

10 Figure 1 is a schematic diagram illustrating an exemplary system for the remote setup of third party calls in accordance with the inventive arrangements disclosed herein. As shown in Figure 1, system 100 can include a data communications network 105 and a telecommunications network 110 communicatively linked to one another through a gateway 125 such as a Voice-over-IP (VoIP) gateway. The telecommunications network 110 can include, for example, the public switched telephone network (PSTN).

15 Local access to subscriber terminals 135-160 can be provided via the central offices 130. The term subscriber terminals, as used herein, is not limited to land line telephones. Rather, as used herein, subscriber terminals also can include other voice communications devices. In particular, subscriber terminals can include wireless voice communications devices including wireless telephones. As such the term telephone call or call can include, but is not limited to, voice communications between land line and/or wireless devices which are routed through the telecommunications network 110.

20 The central offices 130 can include one or more telephone switching systems having telephony applications 165 stored therein. Telephony applications 165 can include telephony resources such as application programs and data stores which provide enhanced telephony service features to subscribers. For example, telephony applications 165 can provide subscribers with telephony service features such as caller

identification (ID), three-way calling, call forwarding, call transfer, call screening, and call rejection. Additionally, telephony applications 165 can provide enhanced routing functions relating to the setup, maintenance, and termination of the calls initiated by calling parties using the subscriber terminals 135-160. Telephony applications 165
5 further can be included within a service control point which can be linked to databases within the telephony network. Through the service control point, telephony applications 165 can process control service inquiries and provide services such as 800, and 900 numbers, virtual private networking, three-way calling, and the like.

The data communications network 105, for example the Internet, can include
10 one or more IP nodes 115 and one or more service nodes 120. The IP nodes 115 and the service nodes 120 can provide Web-based IP switching for both IP and traditional telephony networks. As shown, telephony applications 165 also can be included within the IP node 115 and the service node 120.

In operation, subscriber 155 can be involved in an existing telephone call with
15 subscriber 160. As shown in Figure 1, the existing telephone call can be processed using the telephone switching system located in the central office 130. Subsequently, subscriber 150 can initiate a telephone call to subscriber 155 also through the telephone switching system 130. Notably, subscriber 155 can be registered with a service which allows the third party to conference into an existing telephone call. More
20 specifically, subscriber 155 can be enrolled in a service associated with a particular directory number such that when the subscriber 150 calls the directory number, the subscriber 150 can be allowed to join the existing telephone call between subscriber 155 and 160.

The service, which can be implemented as one of the telephony applications
25 165, can be implemented within the telephone switching system within the central office 130. For example, the service can be implemented as an extension to third party calling. Alternatively, the service can be implemented within a service control point within the telecommunications network. The service also can be implemented within the IP node 115 or the service node 120 of the data communications network 105.

15
5 In any case, having registered for the service and specifying one or more numbers for which the service can be active, the subscriber can initiate a telephone call to one of the directory numbers associated with the telephony service. If the called directory number, in this case the directory number for subscriber 155, is in an off-hook state, and subscriber 155 does not have call waiting or chooses not to answer the call waiting requests, the subscriber 150 can choose to be joined to the existing telephone call between subscriber 155 and subscriber 160. Subscriber 150, however, may be required to provide a password for added security.

10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
265
270
275
280
285
290
295
300
305
310
315
320
325
330
335
340
345
350
355
360
365
370
375
380
385
390
395
400
405
410
415
420
425
430
435
440
445
450
455
460
465
470
475
480
485
490
495
500
505
510
515
520
525
530
535
540
545
550
555
560
565
570
575
580
585
590
595
600
605
610
615
620
625
630
635
640
645
650
655
660
665
670
675
680
685
690
695
700
705
710
715
720
725
730
735
740
745
750
755
760
765
770
775
780
785
790
795
800
805
810
815
820
825
830
835
840
845
850
855
860
865
870
875
880
885
890
895
900
905
910
915
920
925
930
935
940
945
950
955
960
965
970
975
980
985
990
995
1000
1005
1010
1015
1020
1025
1030
1035
1040
1045
1050
1055
1060
1065
1070
1075
1080
1085
1090
1095
1100
1105
1110
1115
1120
1125
1130
1135
1140
1145
1150
1155
1160
1165
1170
1175
1180
1185
1190
1195
1200
1205
1210
1215
1220
1225
1230
1235
1240
1245
1250
1255
1260
1265
1270
1275
1280
1285
1290
1295
1300
1305
1310
1315
1320
1325
1330
1335
1340
1345
1350
1355
1360
1365
1370
1375
1380
1385
1390
1395
1400
1405
1410
1415
1420
1425
1430
1435
1440
1445
1450
1455
1460
1465
1470
1475
1480
1485
1490
1495
1500
1505
1510
1515
1520
1525
1530
1535
1540
1545
1550
1555
1560
1565
1570
1575
1580
1585
1590
1595
1600
1605
1610
1615
1620
1625
1630
1635
1640
1645
1650
1655
1660
1665
1670
1675
1680
1685
1690
1695
1700
1705
1710
1715
1720
1725
1730
1735
1740
1745
1750
1755
1760
1765
1770
1775
1780
1785
1790
1795
1800
1805
1810
1815
1820
1825
1830
1835
1840
1845
1850
1855
1860
1865
1870
1875
1880
1885
1890
1895
1900
1905
1910
1915
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
2085
2090
2095
2100
2105
2110
2115
2120
2125
2130
2135
2140
2145
2150
2155
2160
2165
2170
2175
2180
2185
2190
2195
2200
2205
2210
2215
2220
2225
2230
2235
2240
2245
2250
2255
2260
2265
2270
2275
2280
2285
2290
2295
2300
2305
2310
2315
2320
2325
2330
2335
2340
2345
2350
2355
2360
2365
2370
2375
2380
2385
2390
2395
2400
2405
2410
2415
2420
2425
2430
2435
2440
2445
2450
2455
2460
2465
2470
2475
2480
2485
2490
2495
2500
2505
2510
2515
2520
2525
2530
2535
2540
2545
2550
2555
2560
2565
2570
2575
2580
2585
2590
2595
2600
2605
2610
2615
2620
2625
2630
2635
2640
2645
2650
2655
2660
2665
2670
2675
2680
2685
2690
2695
2700
2705
2710
2715
2720
2725
2730
2735
2740
2745
2750
2755
2760
2765
2770
2775
2780
2785
2790
2795
2800
2805
2810
2815
2820
2825
2830
2835
2840
2845
2850
2855
2860
2865
2870
2875
2880
2885
2890
2895
2900
2905
2910
2915
2920
2925
2930
2935
2940
2945
2950
2955
2960
2965
2970
2975
2980
2985
2990
2995
3000
3005
3010
3015
3020
3025
3030
3035
3040
3045
3050
3055
3060
3065
3070
3075
3080
3085
3090
3095
3100
3105
3110
3115
3120
3125
3130
3135
3140
3145
3150
3155
3160
3165
3170
3175
3180
3185
3190
3195
3200
3205
3210
3215
3220
3225
3230
3235
3240
3245
3250
3255
3260
3265
3270
3275
3280
3285
3290
3295
3300
3305
3310
3315
3320
3325
3330
3335
3340
3345
3350
3355
3360
3365
3370
3375
3380
3385
3390
3395
3400
3405
3410
3415
3420
3425
3430
3435
3440
3445
3450
3455
3460
3465
3470
3475
3480
3485
3490
3495
3500
3505
3510
3515
3520
3525
3530
3535
3540
3545
3550
3555
3560
3565
3570
3575
3580
3585
3590
3595
3600
3605
3610
3615
3620
3625
3630
3635
3640
3645
3650
3655
3660
3665
3670
3675
3680
3685
3690
3695
3700
3705
3710
3715
3720
3725
3730
3735
3740
3745
3750
3755
3760
3765
3770
3775
3780
3785
3790
3795
3800
3805
3810
3815
3820
3825
3830
3835
3840
3845
3850
3855
3860
3865
3870
3875
3880
3885
3890
3895
3900
3905
3910
3915
3920
3925
3930
3935
3940
3945
3950
3955
3960
3965
3970
3975
3980
3985
3990
3995
4000
4005
4010
4015
4020
4025
4030
4035
4040
4045
4050
4055
4060
4065
4070
4075
4080
4085
4090
4095
4100
4105
4110
4115
4120
4125
4130
4135
4140
4145
4150
4155
4160
4165
4170
4175
4180
4185
4190
4195
4200
4205
4210
4215
4220
4225
4230
4235
4240
4245
4250
4255
4260
4265
4270
4275
4280
4285
4290
4295
4300
4305
4310
4315
4320
4325
4330
4335
4340
4345
4350
4355
4360
4365
4370
4375
4380
4385
4390
4395
4400
4405
4410
4415
4420
4425
4430
4435
4440
4445
4450
4455
4460
4465
4470
4475
4480
4485
4490
4495
4500
4505
4510
4515
4520
4525
4530
4535
4540
4545
4550
4555
4560
4565
4570
4575
4580
4585
4590
4595
4600
4605
4610
4615
4620
4625
4630
4635
4640
4645
4650
4655
4660
4665
4670
4675
4680
4685
4690
4695
4700
4705
4710
4715
4720
4725
4730
4735
4740
4745
4750
4755
4760
4765
4770
4775
4780
4785
4790
4795
4800
4805
4810
4815
4820
4825
4830
4835
4840
4845
4850
4855
4860
4865
4870
4875
4880
4885
4890
4895
4900
4905
4910
4915
4920
4925
4930
4935
4940
4945
4950
4955
4960
4965
4970
4975
4980
4985
4990
4995
5000
5005
5010
5015
5020
5025
5030
5035
5040
5045
5050
5055
5060
5065
5070
5075
5080
5085
5090
5095
5100
5105
5110
5115
5120
5125
5130
5135
5140
5145
5150
5155
5160
5165
5170
5175
5180
5185
5190
5195
5200
5205
5210
5215
5220
5225
5230
5235
5240
5245
5250
5255
5260
5265
5270
5275
5280
5285
5290
5295
5300
5305
5310
5315
5320
5325
5330
5335
5340
5345
5350
5355
5360
5365
5370
5375
5380
5385
5390
5395
5400
5405
5410
5415
5420
5425
5430
5435
5440
5445
5450
5455
5460
5465
5470
5475
5480
5485
5490
5495
5500
5505
5510
5515
5520
5525
5530
5535
5540
5545
5550
5555
5560
5565
5570
5575
5580
5585
5590
5595
5600
5605
5610
5615
5620
5625
5630
5635
5640
5645
5650
5655
5660
5665
5670
5675
5680
5685
5690
5695
5700
5705
5710
5715
5720
5725
5730
5735
5740
5745
5750
5755
5760
5765
5770
5775
5780
5785
5790
5795
5800
5805
5810
5815
5820
5825
5830
5835
5840
5845
5850
5855
5860
5865
5870
5875
5880
5885
5890
5895
5900
5905
5910
5915
5920
5925
5930
5935
5940
5945
5950
5955
5960
5965
5970
5975
5980
5985
5990
5995
6000
6005
6010
6015
6020
6025
6030
6035
6040
6045
6050
6055
6060
6065
6070
6075
6080
6085
6090
6095
6100
6105
6110
6115
6120
6125
6130
6135
6140
6145
6150
6155
6160
6165
6170
6175
6180
6185
6190
6195
6200
6205
6210
6215
6220
6225
6230
6235
6240
6245
6250
6255
6260
6265
6270
6275
6280
6285
6290
6295
6300
6305
6310
6315
6320
6325
6330
6335
6340
6345
6350
6355
6360
6365
6370
6375
6380
6385
6390
6395
6400
6405
6410
6415
6420
6425
6430
6435
6440
6445
6450
6455
6460
6465
6470
6475
6480
6485
6490
6495
6500
6505
6510
6515
6520
6525
6530
6535
6540
6545
6550
6555
6560
6565
6570
6575
6580
6585
6590
6595
6600
6605
6610
6615
6620
6625
6630
6635
6640
6645
6650
6655
6660
6665
6670
6675
6680
6685
6690
6695
6700
6705
6710
6715
6720
6725
6730
6735
6740
6745
6750
6755
6760
6765
6770
6775
6780
6785
6790
6795
6800
6805
6810
6815
6820
6825
6830
6835
6840
6845
6850
6855
6860
6865
6870
6875
6880
6885
6890
6895
6900
6905
6910
6915
6920
6925
6930
6935
6940
6945
6950
6955
6960
6965
6970
6975
6980
6985
6990
6995
7000
7005
7010
7015
7020
7025
7030
7035
7040
7045
7050
7055
7060
7065
7070
7075
7080
7085
7090
7095
7100
7105
7110
7115
7120
7125
7130
7135
7140
7145
7150
7155
7160
7165
7170
7175
7180
7185
7190
7195
7200
7205
7210
7215
7220
7225
7230
7235
7240
7245
7250
7255
7260
7265
7270
7275
7280
7285
7290
7295
7300
7305
7310
7315
7320
7325
7330
7335
7340
7345
7350
7355
7360
7365
7370
7375
7380
7385
7390
7395
7400
7405
7410
7415
7420
7425
7430
7435
7440
7445
7450
7455
7460
7465
7470
7475
7480
7485
7490
7495
7500
7505
7510
7515
7520
7525
7530
7535
7540
7545
7550
7555
7560
7565
7570
7575
7580
7585
7590
7595
7600
7605
7610
7615
7620
7625
7630
7635
7640
7645
7650
7655
7660
7665
7670
7675
7680
7685
7690
7695
7700
7705
7710
7715
7720
7725
7730
7735
7740
7745
7750
7755
7760
7765
7770
7775
7780
7785
7790
7795
7800
7805
7810
7815
7820
7825
7830
7835
7840
7845
7850
7855
7860
7865
7870
7875
7880
7885
7890
7895
7900
7905
7910
7915
7920
7925
7930
7935
7940
7945
7950
7955
7960
7965
7970
7975
7980
7985
7990
7995
8000
8005
8010
8015
8020
8025
8030
8035
8040
8045
8050
8055
8060
8065
8070
8075
8080
8085
8090
8095
8100
8105
8110
8115
8120
8125
8130
8135
8140
8145
8150
8155
8160
8165
8170
8175
8180
8185
8190
8195
8200
8205
8210
8215
8220
8225
8230
8235
8240
8245
8250
8255
8260
8265
8270
8275
8280
8285
8290
8295
8300
8305
8310
8315
8320
8325
8330
8335
8340
8345
8350
8355
8360
8365
8370
8375
8380
8385
8390
8395
8400
8405
8410
8415
8420
8425
8430
8435
8440
8445
8450
8455
8460
8465
8470
8475
8480
8485
8490
8495
8500
8505
8510
8515
8520
8525
8530
8535
8540
8545
8550
8555
8560
8565
8570
8575
8580
8585
8590
8595
8600
8605
8610
8615
8620
8625
8630
8635
8640
8645
8650
8655
8660
8665
8670
8675
8680
8685
8690
8695
8700
8705
8710
8715
8720
8725
8730
8735
8740
8745
8750
8755
8760
8765
8770
8775
8780
8785
8790
8795
8800
8805
8810
8815
8820
8825
8830
8835
8840
8845
8850
8855
8860
8865
8870
8875
8880
8885
8890
8895
8900
8905
8910
8915
8920
8925
8930
8935
8940
8945
8950
8955
8960
8965
8970
8975
8980
8985
8990
8995
9000
9005
9010
9015
9020
9025
9030
9035
9040
9045
9050
9055
9060
9065
9070
9075
9080
9085
9090
9095
9100
9105
9110
9115
9120
9125
9130
9135
9140
9145
9150
9155
9160
9165
9170
9175
9180
9185
9190
9195
9200
9205
9210
9215
9220
9225
9230
9235
9240
9245
9250
9255
9260
9265
9270
9275
9280
9285
9290
9295
9300
9305
9310
9315
9320
9325
9330
9335
9340
9345
9350
9355
9360
9365
9370
9375
9380
9385
9390
9395
9400
9405
9410
9415
9420
9425
9430
9435
9440
9445
9450
9455
9460
9465
9470
9475
9480
9485
9490
9495
9500
9505
9510
9515
9520
9525
9530
9535
9540
9545
9550
9555
9560
9565
9570
9575
9580
9585
9590
9595
9600
9605
9610
9615
9620
9625
9630
9635
9640
9645
9650
9655
9660
9665
9670
9675
9680
9685
9690
9695
9700
9705
9710
9715
9720
9725
9730
9735
9740
9745
9750
9755
9760
9765
9770
9775
9780
9785
9790
9795
9800
9805
9810
9815
9820
9825
9830
9835
9840
9845
9850
9855
9860
9865
9870
9875
9880
9885
9890
9895
9900
9905
9910
9915
9920
9925
9930
9935
9940
9945
9950
9955
9960
9965
9970
9975
9980
9985
9990
9995
10000
10005
10010
10015
10020
10025
10030
10035
10040
10045
10050
10055
10060
10065
10070
10075
10080
10085
10090
10095
10100
10105
10110
10115
10120
10125
10130
10135
10140
10145
10150
10155
10160
10165
10170
10175
10180
10185
10190
10195
10200
10205
10210
10215
10220
10225
10230
10235
10240
10245
10250
1025

be limited to conversing only with subscriber 155, the party to whom subscriber 150 first initiated the call. That is, subscriber 150 can converse with subscriber 155 without other parties involved in the existing call such as subscriber 160 overhearing.

5 In illustration, the method and apparatus disclosed herein can be used in the case where a parent has registered his or her home directory number for the remote third party calling service. Accordingly, while out at a remote location such as a restaurant or from a wireless telephone, the parent may wish to call home to speak with the parent's child. If the child at home is involved in an existing telephone call and does not respond to call waiting requests, the parent can initiate the remote third party calling service. Specifically, the parent can call an access number, enter the parent's home directory number, and verify his or her identity. The parent then can be included within the existing telephone call between subscriber 155, the child, and subscriber 160, the child's friend. In consequence, the parent can successfully interrupt and join the child's ongoing telephone call without operator assistance.

10
15 Similarly, the invention disclosed herein can be used in cases where a third party wishes to join a conference call already in progress. In that case, the directory number used for the conference call, for example a directory number assigned to a conference call or a participant's directory number, can be registered with the remote third party calling service. Accordingly, any callers calling the conference directory number can be included within the existing conference call by dialing an access number, entering the conference call number, and then providing an authorization password to verify that the caller has the authorization to join the existing conference call.

20 In an alternative embodiment of the present invention, caller ID information from subscriber 150 can be used to verify the caller's identity rather than a password. The caller ID information, for example, can be compared to a list of authorized persons. This embodiment, however, provides less security with regard to enabling unauthorized parties to be included within an existing telephone call, especially in cases where one subscriber borrows another subscriber's telephone or portable telephone.

25 Figure 3 is a flow chart illustrating a method 300 of setting up third party calls in

accordance with the inventive arrangements disclosed herein. For purposes of illustration, it can be assumed that the called party, if engaged in an existing telephone call, either does not have call waiting or chooses not to respond to call waiting requests. Thus, the method can begin in step 305 where a third party dials the directory number of a called party. In step 310, a determination can be made as to whether the called party is already engaged in an existing telephone call with another party. If not, the method can continue to step 315 where the third party can be connected to the called party. After connecting the third party to the called party, the method can end.

If, however, the called party is engaged in an existing telephone call with another party, for example in the case where a busy indicator is detected, the method can continue to step 320. In step 320, the third party can terminate the initiated call to the called party and dial an access number. The access number can be provided during the unsuccessful attempt to call the called party or at the time of registration or activation of the remote third party calling service. In step 325, the third party can enter the directory number of the called party. After step 325, the method can continue to step 330.

In step 330, a determination can be made as to whether the called party can accept remote third party calls. In particular, a determination can be made as to whether remote setup of third party calls has been activated for the directory number of the called party. If not, the method can continue to step 335 where an announcement can be played to the third party indicating that the directory number of the called party is not registered for the requested service. After step 335, the method can end.

If in step 330, it has been determined that the called party can accept remote third party calls, the method can continue to step 340. In step 340, the third party caller can enter a password. As mentioned, however, the present invention can rely upon other methods for determining whether the third party is an authorized party such as comparing caller ID data to a list of authorized callers. If the password is valid, the method can continue to step 355 where the third party can be connected to the existing call with the called party and any other parties involved in the existing call. If the

password is not valid, however, the method can continue to step 350 where an announcement can be played to the third party caller indicating that the entered password was invalid. After playing the announcement in step 350, the method can end.

5 The present invention can be realized in hardware, software, or a combination of hardware and software. The present invention can be realized in a centralized fashion in one computer system, or in a distributed fashion where different elements are spread across several interconnected computer systems. Any kind of computer system or other apparatus adapted for carrying out the methods described herein is suited. A
10 typical combination of hardware and software can be a general purpose computer system with a computer program that, when being loaded and executed, controls the computer system such that it carries out the methods described herein.

15 The present invention also can be embedded in a computer program product, which comprises all the features enabling the implementation of the methods described herein, and which when loaded in a computer system is able to carry out these methods. Computer program in the present context means any expression, in any language, code or notation, of a set of instructions intended to cause a system having an information processing capability to perform a particular function either directly or after either or both of the following: a) conversion to another language, code or
20 notation; b) reproduction in a different material form.

 This invention can be embodied in other forms without departing from the spirit or essential attributes thereof. Accordingly, reference should be made to the following claims, rather than to the foregoing specification, as indicating the scope of the invention.